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APPENDIX H

PROCEDURES FOR DETERMINING AMBIENT AIR CONCENTRATIONS FOR HAZARDOUS AIR POLLUTANTS

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APPENDIX H
PROCEDURES FOR DETERMINING AMBIENT AIR CONCENTRATIONS
FOR HAZARDOUS AIR POLLUTANTS

1. APPLICABILITY: The procedure described in Appendix H of these rules shall be used to develop chronic ambient air concentrations (CAACs) and acute ambient air concentrations (AAACs) for hazardous air pollutants (HAPs) for the following:

a. Any HAP not included in Rule 372-Maricopa County Hazardous Air Pollutants (HAPS) Program-Table 3-Acute And Chronic Ambient Air Concentrations of these rules; and

b. Any compound included in a group of HAPs listed in Rule 372-Maricopa County Hazardous Air Pollutants (HAPS) Program-Table 3-Acute And Chronic Ambient Air Concentrations of these rules, other than those identified in the group listing as the "selected" compound.

2. CHRONIC AMBIENT AIR CONCENTRATIONS:

a. The applicant shall review the following data sources and, except as otherwise provided, shall give them the priority indicated in the development of chronic ambient air concentrations (CAACs):

(1) Tier 1 Data Sources: Reference Concentrations (RfCs) and air Unit Risk Factors (URFs) as presented in the Integrated Risk Information System (IRIS) of the United States Environmental Protection Agency (EPA).

(2) Tier 2 Data Sources:

(a) Preliminary Remediation Goals (PRGs) developed by Region 9 of the EPA.

(b) Risk-Based Concentrations (RBCs) developed by Region 3 of the EPA.

(3) Tier 3 Data Sources:

(a) Minimal Risk Levels (MRLs) developed by the Agency For Toxic Substances And Disease Registry (ATSDR).

(b) Reference Exposure Levels (RELs) and Unit Risk Factors (CalURFs) developed by the California Environmental Protection Agency.

b. Evaluation Of Tier 1 Values:

(1) Calculation Of Concentrations:

(a) Reference Concentrations (RfCs) shall be multiplied by 1.04 to reflect an assumed exposure of 350 rather than 365 days per year.

(b) Unit Risk Factors (URFs) shall be transformed into concentrations in milligrams per cubic meter (mg/m^3) by applying the following equation:

$$TR \times ATc/(EF \times IFA\ adj \times [URF \times BW/IR])$$

Where: TR = 1E-06
ATc = 25,550 days
EF = 350 days/year
IFA adj = 11m^3-year/kg-day
BW = 70 kg
IR = 20 m^3/day

(2) Comparison To Tier 2 And Tier 3 Concentrations:

(a) The concentration developed in accordance with Section 2(b)(1) of this appendix shall be compared to the Tier 2 and Tier 3 concentrations for the compound, if any.

(b) Unit Risk Factor (URF)-based concentrations shall be compared only to concentrations based on Unit Risk Factors (CalURFs) developed by the California Environmental Protection Agency.

(c) Reference Concentrations (RfCs)-based concentrations shall be compared to concentrations based on Preliminary Remediation Goals (PRGs), Risk-Based Concentrations (RBCs), Minimal Risk Levels (MRLs), and Reference Exposure Levels (RELs).

(d) If there is reasonable agreement between Tier 1 concentration and the other concentrations for the compound, the Tier 1 concentration shall be selected as the chronic ambient air concentration (CAAC).

(e) If the Tier 1 concentration is not in reasonable agreement with the other concentrations and one of the other concentrations is based on more recent or relevant studies that concentration shall be selected as the chronic ambient air concentration (CAAC). Otherwise, the Tier 1 concentration shall be selected.

(**3**) If both a Reference Concentration (RfC)-based and a Unit Risk Factor (URF)-based Tier 1 concentration is selected under Section 2(b)(2) of this appendix, the more stringent of the two shall be used as the chronic ambient air concentration (CAAC).

(**4**) If a Tier 1 value is selected in accordance with this section of this appendix, no further evaluation of Tier 2 or Tier 3 concentrations is required.

c. Evaluation Of Tier 2 Concentrations:

(1) Selection Of Tier 2 Values For Further Evaluation:

(a) If there is only a Preliminary Remediation Goal (PRG) or Risk-Based Concentrations (RBCs) for the compound, it shall be selected for further evaluation in accordance with Section 2(c)(2) of this appendix.

(b) If there is both a Preliminary Remediation Goal (PRG) and a Risk-Based Concentration (RBC) for the compound, the concentrations shall be compared. If the concentrations are similar, the Preliminary Remediation Goal (PRG) shall be selected for further evaluation. If the concentrations are not similar and the Risk-Based Concentration (RBC) is based on more relevant or more recent studies, it shall be selected for further evaluation. Otherwise, the Preliminary Remediation Goal (PRG) shall be selected.

(2) Comparison To Tier 3 Concentrations:

(a) The concentration developed in accordance with Section 2(c)(1) of this appendix shall be compared to the Tier 3 concentrations for the compound, if any. For purposes of this comparison, only Minimal Risk Level (MRL)-based or Reference Exposure Level (REL)-based concentrations shall be considered.

(b) If there is reasonable agreement between the Tier 2 concentrations and the Tier 3 concentrations for the compound, the Tier 2 concentration shall be selected as the chronic ambient air concentration (CAAC).

(c) If the Tier 2 concentration is not in reasonable agreement with the Tier 3 concentrations and one of the Tier 3 concentrations is based on more recent or relevant studies, that concentration shall be selected as the chronic ambient air concentration (CAAC). Otherwise, the Tier 2 concentration shall be selected.

(d) If the Tier 2 concentration is selected in accordance with Section 2(c) of this appendix, no further evaluation of Tier 3 concentrations is required.

d. Evaluation Of Tier 3 Values:

(1) Calculation Of Concentrations:

(a) Minimal Risk Levels (MRLs) and Reference Exposure Levels (RELs) shall be multiplied by 1.04 to reflect an assumed exposure of 350 rather than 365 days per year.

(b) Unit Risk Factors (CalURFs) developed by the California Environmental Protection Agency shall be transformed into concentrations in milligrams per cubic meter (mg/m^3) by applying the following equation:

TR x ATc/(EF x IFA adj x [CalURF x BW/IR])

Where: TR = 1E-06
ATc = 25,550 days
EF = 350 days/year
IFA adj = $11m^3$-year/kg-day
BW = 70 kg
IR = 20 m^3/day

(2) Selection Of Concentration:

(a) If both a Minimal Risk Level (MRL) and a Reference Exposure Level (REL) exist for the compound, the most appropriate shall be selected after considering the relevance and timing of the studies on which the levels are based.

(b) If there is both a Unit Risk Factors (CalURFs) developed by the California Environmental Protection Agency-based concentration and a concentration based on a Minimal Risk Level (MRL) or a Reference Exposure Level (REL) for the compound, the more stringent of the two shall be selected.

e. No Available Data: If there is no data available in any of the sources identified in Section 2(a) of this appendix for the compound, the applicant must perform a Tier 4 risk management analysis (RMA) under Rule 372-Maricopa County Hazardous Air Pollutants (HAPS) Program-Section 306-Risk Management Analysis (RMA) of these rules or forego the risk management analysis (RMA) option.

3. ACUTE AMBIENT AIR CONCENTRATIONS:

a. Selection Of Concentration:

(1) The first concentration identified by evaluating the following data sources in the order listed shall be adjusted, where required, and used as the acute ambient air concentration (AAAC) for the compound:

(a) The level 2 four-hour average Acute Exposure Guideline Level developed by the EPA Office Of Prevention-Pesticides And Toxic Substances.

(b) The level 2 Emergency Response Planning Guideline (ERPG) developed by the American Industrial Hygiene Association. The acute ambient air concentration (AAAC) shall be the Emergency Response Planning Guideline (ERPG) divided by two.

(c) The level 2 Temporary Emergency Exposure Limit (TEEL) developed by the United States Department Of Energy's Emergency Management Advisory Committee's Subcommittee On Consequence Assessment And Protective Action. The acute ambient air concentration (AAAC) shall be the Temporary Emergency Exposure Limit (TEEL) divided by two.

(2) **No Available Data:** If there is no data available in any of the sources identified in Section 3(a) of this appendix, the applicant must perform a Tier 4 risk management analysis (RMA) under Rule 372-Maricopa County Hazardous Air Pollutants (HAPS) Program-Section 306-Risk Management Analysis (RMA) of these rules or forego the risk management analysis (RMA) option.